Backout/Cut-off Discussion

9/25/2020

Cutoff

Excess/Cutoff -Total units of a BMP in a specific geography that were not backed out but do not receive credit because there were **not enough units** in that area for them to receive credit

Cutoff Requests from our last meeting:

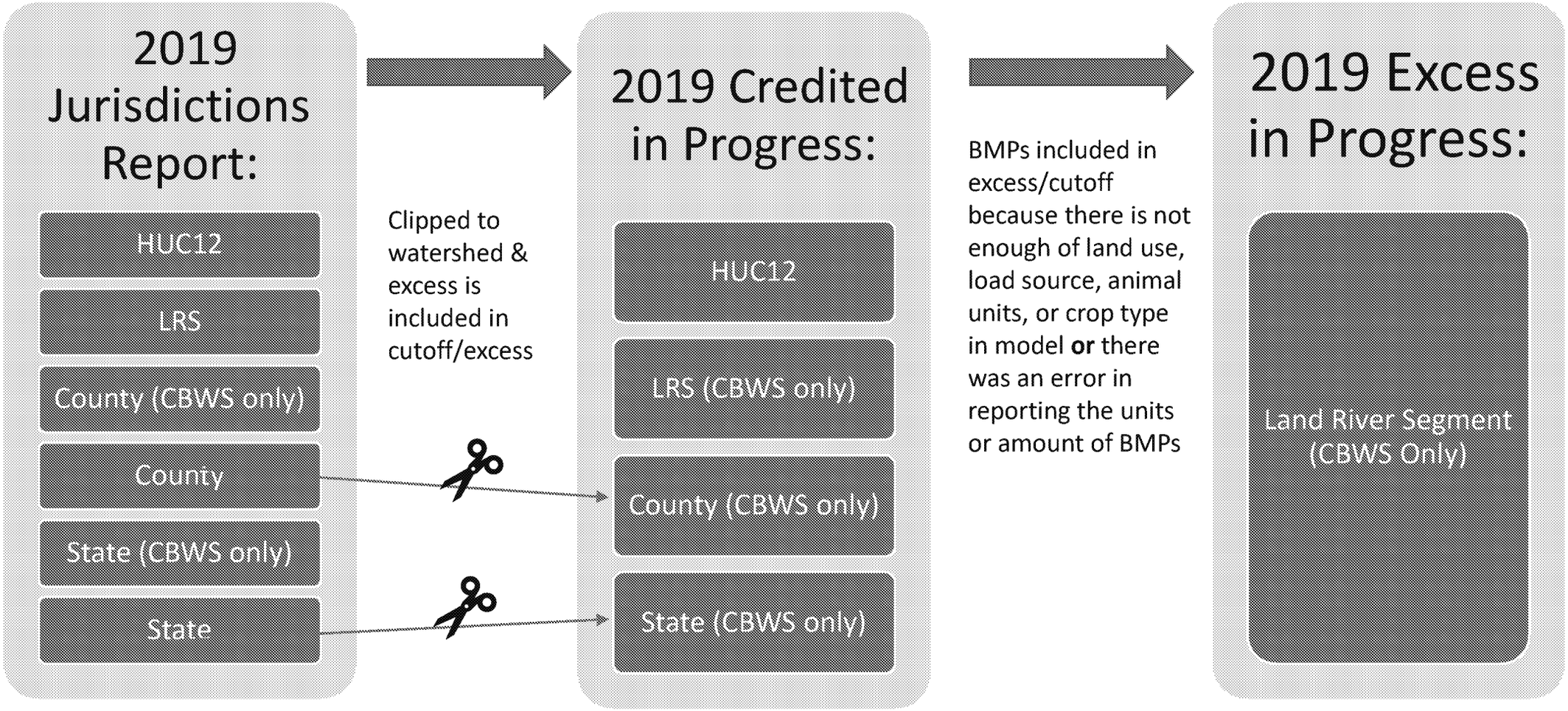
- What percent of non-annual practices are cut-off?
- Run the percentages for each jurisdiction without animal practices

Chesapeake Bay Program Grant Guidance

Attachment 6: Chesapeake Bay Program Wastewater Facility and BMP Implementation Data Submission Specifications and Requirements

Page 8: “Jurisdictions are to report BMPs as they occur on the landscape at the most site-specific scale that conforms with legal and programmatic constraints, and at a scale compatible to data input for the Chesapeake Bay Program partnership modeling tools.”

Scale Jurisdictions Reported BMPs in 2019



2019 Agricultural BMPs Cutoff – LRS only in CBWS

Best Management Practices	Duration	Unit	Amount Cutoff	Percent Cutoff
Barnyard Runoff Control	Cumulative	Acres	3,342	33.0%
Forest Buffers Upland Acres	Cumulative	Acres	345	0.2%
Grass Buffers Upland Acres	Cumulative	Acres	591	0.2%
Land Retirement	Cumulative	Acres	1	0.0%
Prescribed Grazing	Cumulative	Acres	82	0.0%
Soil Conservation and Water Quality Plans	Cumulative	Acres	101,885	5.9%
Wetland Upland Acres BMPs	Cumulative	Acres	13	0.0%
Cumulative Ag BMPs			**106,259**	**4.0%**
Cover Crop	Annual	Acres	30,648	3.2%
Nutrient Management Core N	Annual	Acres	45,646	2.1%
Nutrient Management Core P	Annual	Acres	44,948	2.5%
Nutrient Management N Placement	Annual	Acres	4,003	2.4%
Nutrient Management N Rate	Annual	Acres	4,577	1.1%
Nutrient Management N Timing	Annual	Acres	3,163	2.1%
Nutrient Management P Placement	Annual	Acres	4,058	2.7%
Nutrient Management P Rate	Annual	Acres	4,058	3.4%
Nutrient Management P Timing	Annual	Acres	3,163	5.2%
Tillage Management	Annual	Acres	184,798	5.8%
Annual Ag BMPs			**329,062**	**3.6%**
Total BMP		Acres	435,321	3.7%

2019 Agricultural BMPs Cutoff by state –LRS in Watershed only

Best Management Practices	DE	DE%	MD	MD%	NY	NY%	PA	PA%	VA	VA%	WV	WV%
Barnyard Runoff Control + Loafing Lot Mgmt	2,338	82.9%	397	30.6%	4	3.9%	556	13.9%	11	0.7%	36	9.5%
Forest Buffers Upland Acres	325		342	0.3%					20	0.1%		
Grass Buffers Upland Acres			10	0.0%					581	0.8%		
Grass Buffer									16	0.7%		
Land Retirement									1.0	0.1%		
Prescribed Grazing									82			
Soil Conservation and Water Quality Plans	101,575	36.5%					310	0.1%				
Wetland BMPs			13	0.1%			1.1	0.0%	0.2	0.0%		
Cover Crop	3,670	5.7%	21,845	4.3%	375	3.3%			4,489	2.9%	269	6.1%
Nutrient Management Core N			22,809.5	2.4%	3,163	4.4%	698	0.2%	18,976	3.7%		
Nutrient Management Core P			22,809.5	2.4%	3,163	4.4%			18,976	3.7%		
Nutrient Management N Placement					3,163	4.8%			840	8.6%		
Nutrient Management N Rate					3,163	5.0%	574	2.0%	840	2.1%		
Nutrient Management N Timing					3,163	5.2%						
Nutrient Management P Placement					3,163	4.9%			895	4.6%		
Nutrient Management P Rate					3,163	5.2%			895	4.6%		
Nutrient Management P Timing					3,163	5.2%						
Tillage Management	168,655	49.5%	16,144	1.9%								

2019 Animal Unit BMPs Cutoff – Entire Watershed

Best Management Practices	Unit	Amount Cutoff	Percent Cutoff
Livestock Waste Management Systems	Animal Units	128,329	26.5%
Poultry Waste Management Systems	Animal Units	1,985,114	30.6%
Mortality Composting	Animal Units	1,745,099	86.4%

2019 Animal Unit BMPs Cutoff by state

Best Management Practices	Unit	DE	DE%	MD	MD%	NY	NY%	PA	PA%	VA	VA%	WV	WV%
Livestock Waste Management Systems	Animal Units	1,539	33.2%	88,606	56.0%	32,668.0	27.9%	2,737.5	1.8%	2,421.0	5.9%	358	2.3%
Poultry Waste Management Systems	Animal Units	78,201	9.7%	796,378	32.7%			348,066	27.3%	710,153	43.4%	52,316.6	15.3%
Mortality Composting	Animal Units	698,323	93.3%	878,806	91.5%			61,834	54.5%	92,346	56.1%	13,790	42.8%

2019 Urban and Other BMPs Cutoff – Entire Watershed

Best Management Practices	Unit	Amount Cutoff	Percent Cutoff
Erosion and Sediment Control	Acres	13,645	24.7%
Forest Harvesting Practices	Acres	2,861	3.1%
Urban Nutrient Management	Acres	447	1.1%
Septic BMPs	Systems	344	0.4%
Stormwater BMPs	Acres Treated	41,170	1.5%
Street Sweeping	Acres	459	20.5%
Urban Shoreline BMPs	Feet	267	0.1%

2019 Urban and Other BMPs Cutoff – By State

Best Management Practices	Unit	DC	DC%	DE	DE%	MD	MD%	NY	NY%	PA	PA%	VA	VA%	WV	WV%
Erosion and Sediment Control	Acres							9	7.9%	13,441	75.6%	194	0.6%	0.1	0.0%
Forest Harvesting Practices	Acres			1,021	52.6%					700	4.0%	1,140	2.0%		
Urban Nutrient Management	Acres											447	1.1%		
Septic BMPs	Systems			95	1.5%							249	2.2%		
Stormwater BMPs	Acres Treated	286	8.4%			16,413	6.6%	10	4.8%	23,197	1.1%	1,280	0.4%		
Street Sweeping	Acres			459	31.7%										
Urban Shoreline BMPs	Feet					32	0.1%					235	0.1%		

Steps taken to estimate load reduction of cutoff BMPs

1. Took 2019 submitted vs credited BMP report at the LRS scale and removed LRS that were out of the watershed
2. Removed BMPs that had no excess BMP units
3. Removed upland acres BMPs in Land BMPs and riparian fence in Animal BMPs
4. Changed geography from LRS to state scale (This was to spread out the excess across the state to get a rough estimation without cutting off BMPs. With this method there were still some excess BMPs).
5. Created input deck using CAST land and animal .txt file templates
6. Added to new scenario with 2019 baseline and 2019 wastewater at the State (CBWS Portion Only Scale)
7. Added a blank scenario with the same 2019 baseline with no BMPs
8. Created a loads report and BMP summary report, checked submitted vs credited report for BMPs still cutoff
9. Subtracted the scenarios to get an amount of TN and TP reduced from the BMPs.

CAST scenario of BMPs cutoff

Run at state-scale

State	TN EOT	TP EOT
Delaware	869,445	28,863
DC	-	-
Maryland	1,029,703	64,088
New York	207,818	5,510
Pennsylvania	1,275,435	67,500
Virginia	385,817	22,134
West Virginia	42,086	1,655
Total Reduction from BMPs	3,810,306	189,751

BMPs cutoff at State Scale

(Not enough acres of load source even at state scale)

State	BMP	Unit	Sector	Load Source/Land Use	Excess
PA	Erosion and Sediment Control Level 2	Acres	Developed	Regulated Construction	8,516
PA	Erosion and Sediment Control Level 2	Acres	Developed	CSS Construction	240
DE	Barnyard Runoff Control	Acres	Agriculture	Permitted Feeding Space	1,600
DE	Barnyard Runoff Control	Acres	Agriculture	Non-Permitted Feeding Space	253
DE	Soil Conservation and Water Quality Plans	Acres	Agriculture	Ag Open Space	8
DE	Tillage Management-Low Residue	Acres	Agriculture	Double Cropped Land	210
DE	Tillage Management-Conservation	Acres	Agriculture	Double Cropped Land	190
DE	Tillage Management-Continuous High Residue	Acres	Agriculture	Double Cropped Land	154

Cut-off Comments 9/3/2020

- BMP verification may solve over-reporting for states reporting in CBWS only
- County scale data should be distributed to the LRS proportionally to the available untreated acres.
- Examine methodology of animal counts using the Ag census and data supplemented by the states

Backout

Amount Backed Out - Total units of a **land use change BMP** in a specific geography that are part of the cumulative record, but no longer receive land use change credit for the reported amount as the **model now captures the benefit** from the on-the-ground change in land use detected by additional years of imagery data. The efficiency portion of the credit is still applied.

Currently the backout baseline for land use change BMPs is 2017.

NY Example

BMP	From Load Source	To Load Source	2017 Amount Submitted	2017 Amount Backed Out	2019 Amount Submitted	2019 Amount Backed Out	2019 New Acres
Alternative Crops	Cropland	Ag Open Space	353.3	353.3	383.28	341.38	41.9
Forest Buffer	Cropland	Forest	1,044.20	1,044.20	1,153.41	1,024.54	128.87
Forest Buffer with Exclusion Fencing	Pasture	Forest	1,995.30	1,995.20	2,144.70	1,995.24	149.46
Grass Buffer	Cropland	Ag Open Space	380.4	380.4	405.34	372.21	33.13
Grass Buffer with Exclusion Fencing	Pasture	Ag Open Space	1,061.90	1,061.90	1,136.81	1,061.45	75.36
Land Retirement to Ag Open Space	Cropland	Ag Open Space	962.4	962.4	2,311.73	940.98	1,370.75
Land Retirement to Pasture	Cropland	Pasture	487.2	487.2	625.79	479.02	146.77
Tree Planting	Cropland/Pasture/ Ag Open Space	Forest	5.2	5.2	5.20	5.09	0.11
Tree Planting - Canopy	Turf Grass	Forest	1.0	1.0	2.54	1.01	1.53
Wetland Restoration - Floodplain	Cropland/Pasture/ Ag Open Space	Wetland	629.5	629.5	637.00	626.76	10.24
Total			**6,920.3**	**6,920.3**	**8,805.8**	**6,847.7**	**1,958.12**

Backout Comments 9/3/2020

- For tree planting land use change practices change the back-out baseline to equal date of imagery – 5 years.
- Stop using Ag Census to changes back out baseline. With regular updates to land cover, it is not needed. Currently, back out baseline is determined using NASS ag census (2017) and land cover (2013-2015)
- Back-out baseline should be re-evaluated annually with progress so that the credit duration loss is not double discounted.